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## No. XIII.

## STEAM CULINARY APPARATUS.

*The SILVER VULCAN MEDAL was this session presented to Captain T. M. BAGNOLD, R. M., for an improvement in the STEAM CULINARY APPARATUS. The following communication has been received from Captain Bagnold; and a model of his apparatus has been placed in the Society's repository.*

SIR,

HEREWITH I transmit, for the opinion of the Society, a model of an improved steam kettle, which I will thank you to lay before them. I have had it in use for upwards of a year, and the principle has been adopted by a friend, in both cases with the most complete success.

I am, Sir,

*A. Aikin, Esq.*

*Secretary, &c. &c.*

&c. &c. &c.

T. M. BAGNOLD.

Whilst the great facility, cleanliness, and economy obtained by the application of steam to culinary purposes have been long universally acknowledged, its adoption in private families has been greatly retarded, if not prevented, by the disagreeable effects of the vapour escaping from between the lid and body of the steam kettle employed. Attempts have been made to proportion the supply to the demand, by regulating the cocks; but the nicety of adjust-

ment required, under the constantly varying pressure, was such that the passage of the steam was frequently shut off altogether, and at the hour of dinner the viands were of course found unaltered. About thirteen months since, I fitted up an apparatus in which I flatter myself, that I have completely obviated the objection above stated. My improvement in the steam kettle, consists in the application of a water joint, three inches deep, all round the inner and upper rim; this is filled by means of a lip or nozzle attached to any convenient part of the outside of the said rim, which is perforated to admit the free passage of the fluid; underneath this water-joint a small escapement or warning-pipe one-quarter of an inch in diameter is inserted, which, passing through the side of the kettle, is inserted about half an inch deep into a small condensing cistern containing cold water, which cistern is fitted with a waste-pipe at the side to prevent too much water being retained in it, and is soldered to the kettle by means of a strap of tin at each end, in such a manner that a plate of air, one quarter of an inch wide, or more, is left between the kettle and the cistern: the transmission of heat is thus prevented, and of course the addition of cold water rendered unnecessary except once or twice during the operation. When in use, the kettle is attached to the steam-cock by its ground nozzle, in the usual manner, the meats being placed in it, the lid is to be shut down, and secured from rising by hooks or hasps soldered for that purpose on the kettle; the rim-joint and cistern are filled with water, and the steam being turned on, the atmospheric air is first driven out through the warning or escapement-pipe; and when the kettle has attained its maximum of temperature bubbles of steam pass the same way and are condensed. The cock should then be regulated so that *these last may*

*pass in the slowest manner possible*, and the cook may rest assured that whilst any bubbles are heard, however slowly they may come over, she has a surplus of steam, and consequently the operation is going on well: if, however, from the length of time occupied, the vessel should get sufficiently heated to throw off the slightest visible vapour, a dash of cold water in the condensing cistern or the rim-joint, as the case may require, sets all to rights in a moment.

On this plan I fitted up a single kettle for fish, a double ditto (one standing on the other) for meats and vegetables, a double evaporating pan for heating soups, and an oblong box containing three small saucepans for gravies, butter, &c.: as this last stands on the top of the boiler, and immediately under the chimney, I merely left a small hole, one-twentieth of an inch in diameter, for the surplus steam to escape. The lids of the saucepans fit into their respective water-joints on the box whenever the pans are occasionally removed, so as to prevent any waste of steam: the soup-kettle being double requires no escapement-pipe, but has a cock at the bottom to draw off the distilled water. These all stand in a small recess in the kitchen, about three feet deep, and are supplied by a cast-iron boiler thirteen inches square by eleven deep; and as the cheeks of the grate are flanged off in front at an angle of about forty-five degrees (as recommended by Mr. Stratton), a fire of thirteen inches from cheek to cheek will roast two joints of meat; this, with the oven and steam, will, in the most cleanly and economical manner, cook provisions for thirty persons, or more, if required, whilst the saving in labour and time to the servant cannot be fairly estimated except by a person who has watched both methods with attention.

*Reference to the engraving.—Plate XII.*

Fig. 1 is an elevation, and fig. 5 a bird's-eye view of the steam-vessel.

Figs. 3 and 4 are an elevation and section of the cover.

Fig. 2 is a section of the steam-vessel and its cover.

(The same letters refer to the same parts in all the figures.)

- a* Body of the steam-vessel.
- b* A pipe by which the steam is admitted.
- c* A channel or hollow ring surrounding the top of the steam-vessel.
- d* A lip for the supply of water to the channel *c*.
- e* A pipe bent at right angles, opening at one end into the steam-vessel *a*, and at the other end into the small cistern *f*.
- f* A small cistern open at top, having an exit pipe *g*, and attached to the steam-vessel by two thin plates *h h*.
- i i* Handles of the steam-vessel.
- k* The top and *l* the side of the cover.